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his "Studies of Glaciers" appeared in 1840, and his "Glacial System" in 1847.

For eight successive summers Agassiz and Desor lived upon the glacier of the Aar, and each summer ascended, mostly for the first time, one or more of the peaks of the Oberland. With two friends and four guides they were the first to stand on the summit of the Jungfrau.

The great flat rock in the middle of the medial moraine of the glacier of the Aar, pictures of which are so familiar to all readers of books treating of the glacial phenomena of the Alps, was called the "Hotel des Neufchâtelois," and during its slow majestic descent of the valley it entertained more celebrities, and listened to more scientific talk than any other house in Europe. All the world of science bent its steps, summer after summer, to this unique council chamber in which caroused and debated and slumbered side by side Agassiz, Desor, Vogt, Duchatelier, Nicolle, Pourtales, Coulon, De Pury, Dolfus-Ausset and their innumerable friends and visitors.

Perilous were the undertakings plotted beneath and executed from this alpine boulder on the moving ice; and exciting beyond the common text of scientific publication are the published descriptions of the first ascent of the Schreckhorn, the first ascent of the Jungfrau, and especially the first ascent of the terrible Galenstoc during which the son of Dolfus-Ausset lost his life.

Among the later comers was James Forbes, who, having learned from the veterans of the glacier of the Aar all that close and long and repeated observations could impart, established himself on the Mer de Glace, repeated and verified their data, and then returned to England and anticipated their conclusions by publishing his own celebrated book on the formation and movement of the ice.

Vogt also settled in Neufchâtel, but not until 1839, and assisted Agassiz for five years in natural history, especially in the preparation of his work on the fresh water fishes. Vogt published in 1842 his *Geburtshelferkrote*, and in 1843 his own book entitled "In the Mountains and on the Glaciers." Vogt then went to Paris (in 1844) and stayed until 1846, when he was appointed to a chair in his native city of Giessen. But the troubles of 1848 breaking out, he became again a political exile, and accepted the chair of geology at Geneva in 1852, and at Bern in 1853.

This brilliant coterie of men of science, in the prime of life and in the heat of investigation laying the foundations of more than one department of human knowledge, included two other names of equal fame, Arnold Guyot, and Leo Lesquereux, both of whom still live to illustrate and enlarge our science. While Agassiz, Desor and Vogt were at work in the mountains Guyot was at work on the plain; while they studied the movement of the glacier, he defined the limits of the ancient moraines. As for Lesquereux, his study of the peat bogs of Switzerland, and then

of all northern Europe, led naturally to those broad generalizations respecting the coal-beds of all ages which have given him an immortal fame.

In 1847 Agassiz settled in the United States and commenced his career at Cambridge, Mass., after having opened the eyes of the British geologists to the glacial phenomena of great Britain. He soon drew after him to America Desor, Guyot, and Lesquereux.

Desor, before going to America, had published his own "Geological Alpine Journeys," and had traveled through Norway and Sweden in order to compare the moraine phenomena of Scandinavia with those of Switzerland.

In the winter of 1847-8 I found Agassiz and Desor at work together in a zoological laboratory in East Boston, watching a multitude of living creatures which they had obtained from the neighboring shore and kept in plates and bowls full of sea water. When Agassiz moved to his professorial residence in Cambridge Desor insisted upon remaining in this laboratory at East Boston. He soon became one of the lions of Boston society, but attached himself with the ardor of warm friendship to Edward Cabot, Theodore Parker and Josiah D. Whitney, who remained ever afterwards his devoted friends. He became intimate also with Asa Gray and Henry D. Rogers. It is needless to say that the circle of his habitual personal intercourse included such men as Emerson, Longfellow, Dr. Howe, and James Freeman Clarke.

The story of the separation of Agassiz and Desor which produced so great a sensation in the brilliant society of Boston men of letters and science will never be told, and need not be. In fact, however, the closest intimacy of years was sundered in a few weeks and the two never met again. Agassiz pursued thenceforth an independent career; became the idol of the western world; connected himself closely with Pierce and Bache and Gould; founded a school of natural history research; erected a vast museum; trained a considerable number of scholars to be the men of science of the present generation, and in fact not only gave Harvard College a new destiny, but inspired the entire population of the United States with a zeal for discovery in every branch of human knowledge which continues to burn and illuminate the world.

Desor at first turned to the study of the osars of the coast, and spent a summer with Davis in the study of the tidal gravel banks, always with an eye to glacial action.

He then joined Forster and Whitney in the survey of Lake Superior, under a commission from the United States Government; his special task was to study the alluvions and their fauna.*

In 1850 and 1851 he accepted proposals made to him by Henry D. Rogers to participate in the revision of the geological survey of Penn-

*His term, *Laurentian* for the recent deposits along the St. Lawrence and the Lakes has not been accepted by geologists, because of its subsequent application to the fundamental gneiss of the mountains of Canada. His views on the Northern Drift he published in the *Amer. J. S.*, xiii, 93, 1852.

sylvania. As his task was to investigate the surface deposits, with a special regard to the possible existence and activity of a boreal glacier invading Pennsylvania, I saw much of him in my topographical studies for the construction of maps to show coal terraces, &c. and learned much from him about the movements of the surface sub-soil and local drift.

The study of glaciers led him to regard with critical eyes all phenomena of erosion, and his measurements of the retrocession of the falls of Niagara gave him a very different scale of geological time from that of Hall, Lyell and others. His diagrammatic cross-section of the Via Mala, placed him partly in accord with and partly in opposition to the glacialists of the Ramsay school.

His glacial researches led him also necessarily to study rain and snow, the föhn or schnee-fresser and other winds; in a word he became a good meteorologist and made one of the band of early investigators, with Dové at their head, who established that branch of modern science. After his return to Europe he published papers on the "Climate of the United States and its effect on habits and manners."

At the close of 1851, or early in 1852, Desor was recalled to Neufchâtel by the serious illness of his brother, whom he nursed until his death, taking care of his property and becoming his heir.

Here a new career opened before him; he became a teacher. He was appointed to a chair in the Academy of Neufchâtel, made famous first by Agassiz, and now more famous by the lively, clear, eloquent, fresh teachings of Desor.

In the meantime he pursued his train of original research, and gradually devoted himself to the special branch of fossil echinoderms. His "Synopsis des Echinides" procured him a doctorate from the University of Bâle.

In 1856 his brother's death and the care of his inherited property induced him to resign his chair in the Academy; but while he tended his vineyard overhanging the lake, and farmed the old hunting-lodge of Combe Varin overlooking the Val de Travers, he pursued his researches in natural history, and continued his dredgings on the sites of the aboriginal lake-dwellers. He made unobtrusive use of his wealth in assisting others in their researches.

"He was himself," says one of his intimates, "not without some ambition. It flattered him to stand in relations to the first men of science and be known as their equal. The hospitality which he practised in the most liberal manner enlivened and preserved to him this intercourse which he so dearly loved. Every summer Desor's farm at Combe Varin, on the mountain top overlooking the railway station of Noiraigues on the road to Pontarlier, was a gathering point for notabilities not only of Switzerland but of all foreign countries, not only his friends but his acquaintances; and there reigned in this old hunting-lodge of the Depierres such a comfortable simplicity of entertainment and such perfect liberty of occupation that each guest felt himself entirely at home.

“On both sides of the level road which led from the brow of the mountain to the house stood rows of trees, each dedicated to some guest and marked with his name. More than a hundred names distinguished in politics and science may here be read, many of them now, alas, beneath a cross, to indicate their departure to a better world.”

Four times I have myself shared his hospitality, and can testify to the charms of the place and of its master; and I esteem it as a kind of patent of nobility that my name stands among the rest. Here in 1859 Theodore Parker found a retreat, the summer before he died in Italy (1860), and his double-headed pine stood, at some distance off the road, on the open slope descending to the peat bogs which spread across the plateau between Combe Varin and the village of Les Ponts. Desor followed Parker to Italy, and was with him when he died. His attachment to him was based on their intercourse in Boston; and whatever spiritual theories Desor accepted were more or less formulated under the guiding influence of this powerful thinker and good and generous soul.

Desor was an active member of the Natural History Society of Neuchâtel, and published many short memoirs in its transactions. He leaves his remarkable museum of prehistoric antiquities to its care.

He was a constant attendant at the meetings of the Swiss Congress of Science, and would make long annual journeys to attend other similar national associations; especially of late years the annual meetings of the Anthropologists, as at Copenhagen and at Stockholm, where he was received with distinguished honor.

In fact Desor may be considered the chief of modern geological archaeologists. After the first discovery of lake-dwellings in the winter of 1853-4 at Meilen on the shore of the lake of Zurich, and the commencement of Keller's great museum there, all the lakes of Switzerland were explored for similar discoveries. At least 200 villages were found by Desor and Clement in the lakes of Neuchâtel and Bienne; by Morlot and Troyon in the lake of Geneva, and by other seekers in other lakes. It was concluded that the Swiss lakes were unique in this respect, although Herodotus was quoted as authority for the existence of lake-dwellers in his day in a lake of Thrace. Desor however insisted upon the generality of the phenomenon, and at length made a rendezvous with Von Siebold, of Munich, to test the question in company with his own trained dredger. The immediate result was their great discovery that the palace of the Bavarian King was built on an island in the Starnsee around the edge of which could be seen the piles of the aboriginal lake-dwellers; and in the little museum of the palace they found a considerable number of needles, knives, chisels, &c. which had been dredged from the foundation of the palace. Upon this demonstration of the correctness of the large view which Desor alone had taken of the subject the geologists and antiquaries of Southern Germany and Austria set heartily to work and did not fail to find prehistoric relics in all the lakes of that part of Europe.

Desor subsequently (1864) joined Escher von der Linth the Swiss geol-

ogist, and Charles Martins the botanist of Montpellier, with a commission from the French government to explore the desert of Sahara, which they discovered to be of recent age by finding in its rocks recent shells. Here also Desor gratified his love of dolmens and menhirs, and greatly enlarged his prehistoric studies in that direction : but it was not until 1875 or thereabout that he became a zealous student of the mysterious cup and circle markings on the erratic blocks of Switzerland, and learned by a wide spread and laborious correspondence with his fellow-workers in all countries that they were not only to be seen on rocks from India to Scotland, but on the walls of the most ancient Christian churches of Northern Germany.

Desor was always recognized as an able geologist. His local work in the Jura, mostly carried on with the assistance of his poor friend and able palæontologist Gressly, showed ample ability to grapple with difficult structural problems, although he never freed himself from the prejudice in favor of split anticlinals which the extraordinary section across the mouth of the Val de Travers would naturally inspire in any man who lived within sight of it. This prejudice, moreover, he shared with all the geologists of middle Europe. His astonishment and admiration for the unbroken arches of the Appalachian belt therefore, when at length his eyes were opened to their true character, was unbounded. But in spite of the impression thus made, he remained a consistent opponent of those views of cyclical erosion which were gradually forced upon American geologists, and were afterwards made popular in England by Beete Jukes in the course of the Irish survey.

Desor was the colleague of Bernard Studer, Peter Merian and Esher von der Linth in the commission of the geological survey of Switzerland. During my last visit to his own home in Neufchâtel, in 1880, he showed me an upper room in which the commission kept its archives and met for consultation. But the venerable Studer, the chief of the survey, has his home at the capital of the Confederation, Bern. One of the most remarkable pieces of geological investigation ever made was a section of a range of the Jura north of Neufchâtel, through which a long railroad tunnel was to be driven. Desor and Gressly projected the stratification as it should be found by the engineers. When the tunnel was finished the actual and hypothetical sections were almost absolutely identical. Each formation, almost each stratum, was struck at exactly the point indicated. It was a notable triumph of exact application of science to practical ends.

The political life of Desor is viewed differently, of course, by different classes of his friends. There is intense conservatism in Switzerland, and the overthrow of the aristocracy of the Canton of Neufchâtel by the democrats or radicals has never been forgotten nor forgiven.

As late as 1878, when I rode one day with Desor and Berthoud up the Val de Travers, they were making merry over some scurrilous attacks upon themselves in one of the newspapers ; Desor pointed out to me a passage in which they were called derisively *the two small gods of Neufchâtel*.

In one of the obituary sketches of Desor (*Basler Nachrichten*), written perhaps by Desor's very steadfast friend Prof. Rüttimeyer, I find the following paragraph :

"The burghers of Ponts honored Desor with the burger-right, and sent him, alternately with Noiraigue and Neufchâtel (as soon as the radicals got the majority in Neufchâtel), as member to the Grand Council, which once chose him its President. For many years Desor was a member also of the Ständerath, and of the Nationalrath (or Swiss Parliament), and one of its most distinguished members. Perhaps it would have been better for Desor the investigator had he devoted less of his time to politics ; nor did politics always bring sweet fruits to Desor the man. For ever since he fell away from his old comrades on the question of the repurchase of the Jura railway, and engaged himself personally in an endless newspaper war, which became ever more and more bitter and thankless, his health began to fail, and five years ago the symptoms appeared of that serious malady which led him inevitably to his grave."

The last three years Desor was sent by his physicians to spend the winters in Nice, where he became an active member of two scientific societies. He thus came to preside at the discovery of the fossil man of Carabacel which produced so great a sensation in the geological world. He directed also the researches made in the grotto of Peymanade, discovered by M. Bottin de St. Vallier. He managed in spite his sufferings to ascend considerable heights, and discovered satisfactory proof of the former existence of glaciers descending the southern slope to the shore of the Mediterranean. His letters to me on that subject display all the pleasure and zeal of a boy. His little maps and sections of the structure of the Ligurian coast are perfectly fresh.

Last February I went from Paris to Nice to see Desor for as I feared the last time, and found him extremely feeble and full of pain ; but I had so often seen him thus in former years that I dreaded no immediate danger. In our conversations he dwelt with lively interest on a plan which he was organizing to observe the temperature along the summits of the Pyrenees, and at the level of the plain. He went over again the old story of the Föhn or Alpine snow devouring south wind, in connection with the establishment of high winter sanatoria for invalids in the Tyrol ; and also in connection with the observed winter temperature observed on the Puy de Dome relatively higher than on the plain at Clermont-Ferrand. He earnestly demanded data from the American stations to help discover the law, if it were one.

In a few days Desor was no more. The lamp that burned so brightly flickered a moment, and went out. All research was at an end. One of the sweetest, simplest, most honest, most affectionate, most robust and energetic, most independent natures that ever acquired fame abroad and inspired respect at home, suddenly ceased to suffer and ceased to think. Science had lost another star, Switzerland a sturdy champion of democratic liberty, and many of us a rare friend who cannot by any means be replaced.